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| 10/657,679 | 09/08/2003 | Edouard Serras | 046190/268781 | 1233 |
| 826 | 7590 | 05/16/2007 | EXAMINER | |
| ALSTON & BIRD LLP BANK OF AMERICA PLAZA 101 SOUTH TRYON STREET, SUITE 4000 CHARLOTTE, NC 28280-4000 | | | DANIELS, MATTHEW J | |
| ART UNIT | | PAPER NUMBER | | 1732 |
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

| Office Action Summary | Application No. | Applicant(s) |
|------------------------------|------------------------|---------------------|
| | 10/657,679 | SERRAS ET AL. |
| Examiner | Art Unit | |
| | Matthew J. Daniels | 1732 |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) Responsive to communication(s) filed on 02 March 2007.

2a) This action is **FINAL**. 2b) This action is non-final.

3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4) Claim(s) 1,2,6-15,17 and 18 is/are pending in the application.
4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5) Claim(s) _____ is/are allowed.

6) Claim(s) 1,2,6-15,17 and 18 is/are rejected.

7) Claim(s) _____ is/are objected to.

8) Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9) The specification is objected to by the Examiner.

10) The drawing(s) filed on _____ is/are: a) accepted or b) objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) All b) Some * c) None of:
1. Certified copies of the priority documents have been received.
2. Certified copies of the priority documents have been received in Application No. _____.
3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) Notice of References Cited (PTO-892)
2) Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____

4) Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____

5) Notice of Informal Patent Application

6) Other: _____

DETAILED ACTION

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

1. Rejections set forth previously under this section are withdrawn in view of the arguments which assert that no heating is present, and that the 15 C to 20 C temperatures are typical ambient conditions.

2. **Claims 2, 6, 8-15, 17, and 18** are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. There is no disclosure of the 45 second application of pressure. It is noted that there is disclosure that Step 30 lasts 10-15 seconds and that Step 32 lasts 20 to 30 seconds, which adds to a total of 30 to 45 seconds. However, the pressure of 100 to 150 bars (See Claim 12) is not interpreted as being applied during Step 30. Thus, the pressure is not applied for the full 30 to 45 seconds.

Claim Rejections - 35 USC § 102

3. Rejections set forth previously under this section are withdrawn in view of the amended claims.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. **Claims 18, 2, and 8** are rejected under 35 U.S.C. 103(a) as being unpatentable over Revord (USPN 3809566). **As to Claim 18**, Revord teaches a method for manufacturing a building element based on plaster (plaster is gypsum, 1:10-15), comprising preparing a mixture (1:41-45) of plaster, water and filler (vermiculite, 6:28-50), placing said mixture in a mold (3:45-50), applying pressure to the mixture in the mold to obtain the building element (3:45-50, the article is inherently capable of being used as a building element), wherein the amount of pressure applied to the mixture in the mold and the quantity of water in the mixture are sufficiently high to prevent the plaster crystallization under pressure in the mixture (3:28-34, “then sets” in 3:29, which indicates it was not set or crystallized prior), and then unmolding the building element and allowing the plaster in the mixture to crystallize outside the mold (3:28-34, “then sets” in 3:29).

Revord is silent to the claimed 30 to 45 seconds. However, in the method of Revord the mixture is pressed to uniformly diffuse water throughout the calcined gypsum (12:36-38).

Because the dispersion of water throughout the gypsum would not be instantaneous, one practicing the method of Revord would have pressed the mixture until the water was diffused throughout the mixture. Therefore, the particular pressing time would represent a result-effective variable that would be optimized in order to uniformly diffuse the water throughout the calcined gypsum. One of ordinary skill would have arrived at the claimed pressing time through routine experimentation in order cause uniform diffusion throughout the calcined gypsum.

As to Claim 2, Revord teaches the conventionality of using 40 to 70 cc water (1 cc water = 1 gram) for 100 parts by weight of plaster or gypsum (1:64-69). **As to Claim 8**, Revord's vermiculite (6:28-50) is inherently chemically inert with respect to the gypsum.

5. **Claims 18, 2, 6, 8, 12, 17** are rejected under 35 U.S.C. 103(a) as being unpatentable over Brouard (USPN 5507996) in view of Randel (USPN 1901051) and Revord (USPN 3809566).

As to Claim 18, Brouard teaches a method for manufacturing a building element based on plaster (plaster is gypsum), comprising preparing a mixture of plaster, water and filler (sand, 6:15), placing said mixture in a mold (Figures), applying pressure to the mixture in the mold to obtain the building element (6:1-6), and then unmolding the building element.

Brouard appears to be silent to (a) the amount of pressure applied to the mixture in the mold and the quantity of water in the mixture being sufficiently high to prevent the plaster crystallization under pressure in the mixture, (b) the pressure applied to the mixture in the mold for 30 to 45 seconds, and (c) crystallizing outside the mold. However, these elements would have been obvious for the following reasons:

a) Firstly, Brouard discloses a compaction pressure of “about 100 kg/cm²” (6:6), which is the equivalent of about 98.07 bars, a value only slightly below the disclosed threshold pressure of “approximately 100 to 150 bars” (Applicant’s specification, page 2, line 22). The Examiner asserts that the amount of pressure applied to the mixture of Brouard is sufficiently high to produce the claimed effect. Brouard also teaches that the quantity of water may be slightly greater than that required for optimal compactness of the mixture (5:20-25), and because crystallization occurs only after the compacting step (6:43-45), the quantity of water would obviously have been sufficiently high to prevent plaster crystallization while under pressure. Additionally or alternatively, Randel teaches that it is known to mold a mixture, also containing a ratio of plaster to water within the range disclosed by Applicant’s Claim 2 (See Randel, page 4, left column, line 47), at a pressure of 4000 psi, which is greater than the pressure of 150 bars (equivalent to 2176 psi) claimed in instant Claim 12. Randel’s teachings show that both the molding pressure (page 4, left column, lines 12-21) and amount of water (page 4, lines 28-58) represent result-effective variables. See MPEP 2144.05 II and *In re Boesch*, 617 F.2d 272, 205 USPQ 215 (CCPA 1980). It would have been prima facie obvious to one of ordinary skill in the art at the time of the invention to optimize these variables depending on the required pouring consistency and water absorption.

b) Secondly, Brouard teaches two compression stages (5:58-6:6) substantially the same as disclosed in this application (Fig. 3, stages 30 and 32). Furthermore, Brouard teaches that both stages are on the order of seconds (5:64, 6:3), which provide substantially the same effect as claimed. It would have been prima facie obvious to one of ordinary skill in the art at the time of the invention to optimize or adjust these times in order to provide increased or improved settling

and distribution of the water throughout the mixture, leading to the claimed invention.

Furthermore, Brouard ejects the product before complete hydration (6:43-45), thus, hydration occurs outside the mold. Even if Brouard is interpreted to require complete hydration in the mold, this difference pertains only to a rearrangement of the order of process steps disclosed by the prior art, which is generally unpatentable in the absence of unexpected results.

c) Thirdly, Brouard teaches that only “about 70%” (2:19) of the complete hydration, and thus only a fraction of the total crystallization, occurs inside the mold. The Examiner asserts that Brouard’s article would thus crystallize from about 70% to 100% outside the mold, and therefore the claimed step of crystallizing outside the mold is anticipated because about 30% of the article was yet to crystallize when the article was unmolded. Additionally or alternatively, this limitation is drawn purely to a difference in the order of performing process steps disclosed by Brouard, and any order of performing process steps disclosed in the prior art is generally considered to be *prima facie* obvious in the absence of new or unexpected results. See MPEP 2144.04(IV)(c). Brouard teaches the expected result of unmolding a partially crystallized building block, namely “so as to reduce the force that needs to be provided for unmolding the building blocks and so as to reduce mold wear.” (2:20-23). Additionally or alternatively, Revord teaches the claimed order, namely that setting of gypsum based building products can proceed after being ejected from a mold (3:17-34). Additionally, the Applicant’s specification does not assert any unexpected results to be attributed to this change in the order of steps, and discloses that both orders of steps can be performed. See Page 3, lines 10-13.

As to Claim 2, Brouard teaches the claimed ratio of water to plaster (5:25-30). **As to Claim 6**, a two-step pressing process to reduce voids would have been obvious over Brouard’s

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teachings at 5:57-28. Randel teaches that a higher pressure produces less absorption in the finished product (page 4, left column). **As to Claim 8**, Brouard teaches sand (5:27), which is inert. **As to Claim 12**, Randel's pressure exceeds the threshold pressure, and although Brouard appears to be silent to a temperature, the Examiner submits that the claimed temperature reads on room temperature, and therefore would have been *prima facie* obvious when combined with Randel's pressure. **As to Claim 17**, Brouard's mixture meets or suggests the claimed amounts (5:25-30).

6. **Claim 9-12 and 14** are rejected under 35 U.S.C. 103(a) as being unpatentable over Brouard (USPN 5507996) in view of Randel (USPN 1901051), Revord (USPN 3809566), and further in view of Dailey (USPN 2571343). Brouard, Randel, and Revord teach the subject matter of Claim 18 above under 35 USC 103(a). **As to Claim 9**, Brouard, Randel, and Revord appear to be silent to a filler that is not inert with respect to the plaster. However, Dailey teaches organic fillers such as paper fiber, wood flour, hemp, and starch (1:30-38), and the Examiner takes the position that these substances would be at least partially "not chemically inert" with respect to the plaster. Dailey additionally teaches soluble potassium salts in order to control setting expansion (6:50-52), which also constitutes a filler that is "not chemically inert" with respect to the plaster. It would have been *prima facie* obvious to one of ordinary skill in the art at the time of the invention to incorporate the method of Dailey into that of Brouard, Randel, and Revord in order to produce a dense, strong and tough cast (4:45-50) because of its reinforcement (1:36) requiring no drying (4:24-35). **As to Claims 10 and 11**, Dailey teaches the beneficial aspects of melamine (2:20-25). It would have been further *prima facie* obvious to one of

ordinary skill in the art at the time of the invention to incorporate Dailey's method in order to provide "the very desirable characteristic of decreasing the amount of water required to be mixed with the alpha gypsum to produce a mix of pourable of fluid consistency." (2:15-19). **As to Claim 12**, Dailey teaches that temperature is a result effective variable (2:34-43). See MPEP 2144.05 II and *In re Boesch*, 617 F.2d 272, 205 USPQ 215 (CCPA 1980). Additionally, because 15 to 20 degrees C is approximately room temperature, and because Brouard teaches substantially the claimed pressure, the particular conditions would have been *prima facie* obvious. **As to Claim 14**, Dailey teaches the beneficial aspects of melamine (2:20-25). It would have been further *prima facie* obvious to one of ordinary skill in the art at the time of the invention to incorporate Dailey's method in order to provide "the very desirable characteristic of decreasing the amount of water required to be mixed with the alpha gypsum to produce a mix of pourable of fluid consistency." (2:15-19).

7. **Claims 13 and 15** are rejected under 35 U.S.C. 103(a) as being unpatentable over Brouard (USPN 5507996) in view of Randel (USPN 1901051), Revord (USPN 3809566), and further in view of Jagdmann (USPN 1925050). Brouard, Randel, and Revord teach the subject matter of Claim 18 above under 35 USC 103(a). **As to Claims 13 and 15**, Brouard teaches a cavity, produced by a core (3:50-65, 4:51-60). Brouard appears to be silent to the rod or particular shape, however, Jagdmann teaches driving at least one element with a reduced cross section into the mixture in the mold and guiding and driving a rod axially in translation into the mixture (Page 1, lines 40-45, also see Page 4, lines 70-92 and Figs. 7 and 8). It would have been *prima facie* obvious to one of ordinary skill in the art at the time of the invention to incorporate

the method of Jagdmann into that of Brouart, Randel, and Revord in order to provide a more uniform size and density (Page 1, lines 1-55).

Response to Arguments

8. Applicant's arguments filed 2 March 2007 have been fully considered but they are not persuasive. The arguments appear to be on the following grounds:

- a) The present invention differs from Brouard in that (1) it prevents hydration of the plaster under pressure in the mold, whereas Brouard hydrates the plaster under pressure in the mold (to 70-90%), and (2) the pressure is applied for 30-45 seconds, less than the 1.5 to 5 minutes of Brouard.
- b) Randel et al. are silent to the duration of the pressure application.
- c) Revord does not disclose the duration of pressure application.

9. These arguments are not persuasive for the following reasons:

- a) The disclosed steps 30 and 32 (see instant Fig. 3) are substantially the same as disclosed by Brouard in 5:55-6:10. Brouard discloses a packing or settling stage and then a thrusting or compressing stage, each occurring on the order of seconds. Where the general conditions of a claim are disclosed in the prior art, generally it is not patentable to discover the optimum or workable ranges by routine experimentation. *In re Aller*, 220 F.2d 454, 105 USPQ 233, 235 (CCPA 1955). Any difference in this case is one of degree, and not one of kind. Brouard further ejects and then causes crystallization (to about 70% or more). Even if the process of Brouard is interpreted to proceed to complete hydration (crystallization), it is unclear why the

rearrangement in the order of steps of hydrating and ejecting would distinguish the claimed invention, which teaches the same steps, the only difference being drawn to a rearrangement in their order. Additionally, Randel teaches the claimed order of steps, thus even the claimed order would be insufficient to distinguish the claimed method from the prior art.

b,c) Brouard and Revord are believed to each disclose the result-effective nature of the time for application of pressure. Where the general conditions of a claim are disclosed in the prior art, generally it is not patentable to discover the optimum or workable ranges by routine experimentation.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Matthew J. Daniels whose telephone number is (571) 272-2450. The examiner can normally be reached on Monday - Friday, 8:00 am - 4:30 pm.

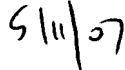
If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Christina Johnson can be reached on (571) 272-1176. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

MJD 5/9/07




CHRISTINA JOHNSON
SUPERVISORY PATENT EXAMINER

5/11/07